

Patent Abstracts of Japan

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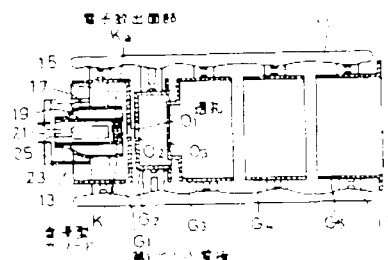
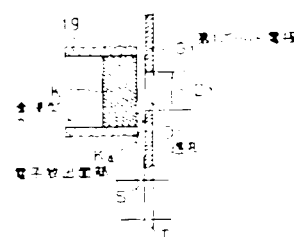
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TITLE : ELECTRON GUN STRUCTURE



ABSTRACT : PURPOSE : To stably obtain an electron beam with high current density and enable changes in the cut-off voltage occurring with the passing of time to be reduced by adjusting the diameter of the electron beam-admitting hole of the first grid electrode, the thickness of the plate section of the first grid electrode and the distance between the electron-emitting surface and the plate section of the first grid electrode according to a specific formula.

CONSTRUCTION: An electron gun structure has an impregnated cathode (K) and a grid electrode group including a first grid electrode (G<sub>1</sub>) which has an electron-beam-admitting hole (O<sub>1</sub>) and a plate section facing the electron-emitting surface of the impregnated cathode (K). The diameter (D<sub>1</sub>) of the hole (O<sub>1</sub>) in the plate section of the first grid electrode (G<sub>1</sub>), the thickness (T<sub>1</sub>) of the active plate section and the distance (S<sub>1</sub>) between the electron-emitting surface of the impregnated cathode (K) and the plate section of the first grid electrode (G<sub>1</sub>) are adjusted according to the formula  $0.855 \cdot D_1^2 \cdot T_1^2 \cdot S_1^2 \geq 2.0$  and  $0.065 \cdot D_1^2 \cdot T_1^2 \cdot S_1^2 \leq 2.0$ .

As a result, changes in the cathode cut-off voltage of the electron gun structure occurring with the passing of time are restricted to, for example, 5% or below.

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